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Polyethylene Encasement for Ductile-Iron Pipe Systems

ANSI/AWWA C105/A21.5-10

***Mountain States Plastics, Inc. 8 Mil Poly Wrap
Meets or Exceeds This Specification Information***

Materials

Linear low-density polyethylene film shall be manufactured of virgin polyethylene material conforming to the following:

Raw Material:	Requirements meet ASTM D4976. Group 2 (Linear)
Density:	0.910 to 0.935 g/cm ³
Dielectric Strength:	Volume resistivity, 10 ¹⁵ ohm-cm, minimum

Physical Properties of Finished Film

Tensile Strength:	3,600 psi (24.8 Mpa) for min. thickness, or 28.8 lbf/in. (50.4 N/cm width) width, minimum in machine and transverse direction (ASTM D882)
Elongation:	700 percent, minimum in machine and transverse direction (ASTM D882)
Dielectric Strength:	800 v/mil (31.8 V/μm) thickness, minimum (ASTM D149)
Impact Resistance:	600 g, minimum (ASTM D1709 Method B)
Propagation Tear Resistance:	2550 gf (grams force), minimum in machine and transverse direction (ASTM D1922)

Thickness: Linear low-density polyethylene film shall have a minimum thickness of 0.008 inches (8 Mil or 200μm).

Tube Size or Sheet Width: Tube size or sheet width for each pipe diameter shall be as listed in Table 1.

Marking Requirements: The polyethylene film supplied shall be clearly marked, at a minimum of every 2 foot along its length with print that does not contain hazardous material. Marking shall contain the following information per AWWA C105/A21.5-10:

- a) Manufacturer's name or trademark.
- b) Year of Manufacture
- c) ANSI/AWWA C105/A21.5
- d) Minimum film thickness and material type (LLDPE)
- e) Applicable range of nominal pipe diameter size(s).
- f) Warning --- Corrosion Protection --- Repair Any Damage

Letters & numerals used for marking items shall not be less than 1 inch in height for items **a** through **e**. Item **f** shall be not less than 1-1/2" in height.

Color: Polyethylene film may be supplied with its natural color, colors including white and black, or weather-resistant black containing not less than 2 percent carbon black with a particle diameter of 90 nm or less. A minimum 2 percent of a hinderedamine ultraviolet inhibitor is required for all films other than the weather-resistant black film with carbon black. Where other colors are specified for purposes of identification, the pigmentation shall not contain any regulated substances. The colors include Purple, Green, Brown, Red, or Blue.

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Section 5: Verification

Sec. 5.1 Inspection and Affidavit of Compliance

5.1.1 Quality control and inspection. The manufacturer of polyethylene film for corrosion protection encasement of ductile-iron pipe systems shall have a documented Quality Control System or a current compliance certificate from an accredited Quality Auditing organization to assure that it complies with all requirements of this standard. The film manufacturer and/or the film distributor shall maintain accessible quality records for a minimum period of one year from the date of manufacture. In lieu of the above records, the manufacturer may elect to test a customer-selected film sample, provided that proof of manufacturer and the date of manufacture (DOM) are verifiable to the sample.

5.1.2 Affidavit of compliance. The purchaser may require a signed affidavit by an officer representing the polyethylene film manufacturer that the film meets the inspection and all applicable material requirements of Sec. 4.1. The manufacturer's statement of compliance with this standard and use of similar statements on packaging or promotional material must be verifiable as required under Sec. 5.1.1. Statements from suppliers shall NOT be accepted in lieu of a statement from the original manufacturer of the polyethylene film.

5.1.3 Freedom from defects. Polyethylene film to be manufactured and used in accordance with this standard shall not be made from recycled materials and shall be clean, sound and without defects.

Table 1 Polyethylene Tube & Sheet Sizes for Push-On Joint Pipe*

Nominal Pipe Diameter		Minimum Polyethylene Width - inches & centimeters			
Inches	(mm)	Flat Tube		Sheet	
3	76	14 in	36 cm	28 in	71 cm
4	102	14	36	28	71
→ 6	152	16	41	32	81
8	203	20	51	40	102
10	254	24	61	48	122
12	305	27	69	54	137
14	356	30	76	60	152
16	406	34	86	68	173
18	457	37	94	74	188
20	508	41	104	82	208
24	610	54	137	108	274
30	762	67	170	134	340
36	914	81	206	162	411
42	1067	81	206	162	411
48	1219	95	241	190	483
54	1400	108	274	216	549
60	1500	108	274	216	549
64	1600	121	307	242	615

*These wrap sizes should work with most push-on joint pipe and fitting bell sizes. Where bell circumferences are larger than the sheet sizes shown, the bell areas should be carefully wrapped with cut film sections, effectively lapping and securing cut edges as necessary; or, alternatively, sufficiently large tube or sheet film to effectively cover these joints should be ordered.